2007-08 Triennial Review of Water Quality Standards

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Kentucky Water Quality Standards Regulations

- 401 KAR 5:002 – Definitions
- 401 KAR 5:026 – Designated uses of surface waters
- 401 KAR 5:029 – General provisions (mixing zones, coal-mining variance, etc)
- 401 KAR 5:030 – Antidegradation procedures
- 401 KAR 5:031 – Surface water standards

History

- Last triennial review was completed Sept 04
- EPA approved in Dec 04 and Apr 05, including antidegradation for the first time
- EPA approval of antidegradation regulation was challenged by environmental groups
- A decision by 6th District Federal Court on appeal has not yet been rendered

Designation of Uses 5:026

- Waters with only default use classifications of Warm Water Aquatic Habitat and Primary/Secondary Contact Recreation will be removed from table

- In other words, only waters that are OSRW, Cold Water Aquatic Habitat, or that contain a surface water intake for domestic water supply will appear in table

Tiered Aquatic Life Use

- Establish 3 tiers
  - Exceptional from 10:030 will be added to existing OSRW use
    - An additional 233 waters for total of 352
    - Additional numeric criteria will only be dissolved oxygen of 6 mg/l ave, but cabinet has ability to require other limits as necessary
  - Warm Water
    - Majority, as now
  - Limited Warm Water
    - Waters with lower expectations because of a variety of influences, primarily to physical habitat, that cannot be expected to change
    - Same criteria as WAH except dissolved oxygen of 4 mg/l ave
    - Populated initially with one water sampled by cabinet, but grow as a result of petitions by interested parties

New Outstanding State Resource Waters based on Federally Threatened/Endangered Species

- Dolen Branch – McCreary County - Upper Cumberland Basin
- Watts Branch – McCreary County - Upper Cumberland Basin
- Fish Trap Creek – McCreary County - Upper Cumberland Basin
- Jellico Creek – McCreary County - Upper Cumberland
- Ohio River – Livingston County - RMI 923.5 to RMI 926.0
- Ohio River – Livingston County - RMI 927 to RMI 930
- Ohio River – Ballard County - RMI 960.0 to 962.7

Antidegradation – 5:030

- Outstanding National Resource Waters
  - Red River in gorge area in Daniel Boone NF
  - Underground river system of Mammoth Cave NP
  - Big South Fork Cumberland River in National Recreation Area
- Exceptional Waters
  - 218 stream segments; 37 new in 2008 based on recent monitoring that found “Excellent” biological communities
  - Reference Reach streams
  - Kentucky Wild Rivers
  - Excellent fish communities
  - Excellent macroinvertebrate communities

5:030 Stream Categories (Cont)

- High Quality Waters
  - All waters default to High Quality unless otherwise specifically listed as ONRW, Exceptional or Impaired
- Impaired Waters
  - Waters listed in 305(b) as impaired
  - Any waters to new Modified WAH use

Proposed Additions to Outstanding National Resource Waters

- Segments of Rockcastle, Marsh Cr, Rock Cr, and War Fork in Daniel Boone National Forest that were previously on final list for inclusion in National Wild and Scenic River system
- Kentucky portion of Reelfoot National Wildlife Refuge to make consistent with Tennessee designation

New Exceptional Waters

Licking River Basin

Blanket Creek
Bowman Creek
Cedar Creek
Flour Creek
Little South Fork (of Big South Fork)
Sawyers Fork
Slate Creek

Upper Cumberland River Basin

Left Fork Fugitt Creek

Salt River Basin

Doctors Creek
Glens Creek UT
Indian Creek
Lick Creek
Shannon Creek UT

Green River Basin

Big Brush Creek
Elk Lick Creek
Puncheon Creek

New Exceptional Waters (cont)

Kentucky River Basin

Backbone Creek
Bear Branch
Billey Fork
Bill Oak Branch
Cherry Run
Craig Creek
Deep Ford Branch
Gilberts Creek
Jacks Creek UT
Katies Creek
Kentucky River UT
Laurel Fork
Little Middle Fork Elisha Creek
Lower Howard Creek
Mikes Branch
Right Fork Elisha Creek
Rock Lick Creek*
Shaker Creek
Steeles Run
Sulphur Creek
Watches Fork

Surface Water Standards - 5:031

- Update criteria based on final recommendations by EPA published in Federal Register since last triennial review
- Relatively short list of updates compared to recent triennial reviews
- Adopt EPA recommended mercury criterion of 0.3 ppm methylmercury in fish tissue as a water quality criterion

Pollutant	CAS Number	Proposed Revisions to Water Quality Criteria (µg/L)							
		Human Health				Aquatic Life			
		Domestic Water Supply		Fish Consumption		Acute		Chronic	
		Existing	Proposed	Existing	Proposed	Existing	Recommended	Existing	Proposed
Chloride	16887006	250,000	250,000[7]	none	none	1,200,000	860,000	600,000	230,000
Chlorobenzene	108907	680	130	21,000	1,600	none	none	none	none
Cyanide, Free	57125	700	140	220,000	140	22	22	5.2	5.2
Endrin	72208	0.76	0.059	0.81	0.060	0.086	0.086	0.036	0.036
Ethylbenzene	100414	3,100	530	29,000	2,100	none	none	none	none
gamma-BHC (Lindane)	58899	0.019	0.98	0.063	1.8	0.95	0.95	none	none
Hexachlorocyclopentadiene	77474	240	40	17,000	1,100	none	none	none	none
Iron	7439896	none	300	none	none	4,000	none	1,000	1,000
Mercury	7439976	2.0	2.0[5]	0.051	0.051	1.7	1.4	0.91	0.77
Methylmercury	22967926	none	none	none	0.3 mg/kg	none	none	none	none
Methoxychlor	72435	40.0	100	None	None	None	None	0.03	0.03
Nonylphenol		None	None	None	None	None	28	None	6.6
Phthalate esters		None	None	None	None	None	None	3	none
Thallium	7440280	1.7	0.24	6.3	0.47	none	none	none	none
Toluene	108883	6800	1,300	200,00	15,000	none	none	none	none
Total dissolved solids		750,000	250,000	None	None	None	None	None	none
Tributyltin (TBT)		None	None	None	None	None	0.46	None	0.072
Vinyl Chloride	75014	2.0	0.025	530	2.4	none	none	none	none
1,1 -dichoroethylene	75354	0.057	330	3.2	7100	none	none	none	none
1,2 -dichlorobenzene	95501	2700	420	17,000	1,300	none	none	none	none
1,2 -trans-dichloroethylene	156605	700	140	140,000	10,000	none	none	none	none
1,2,4-trichlorobenzene	120821	260	35	940	70	none	none	none	none
1,3-dichloropropene	542756	10	0.34	1,700	21	none	none	none	none
1,4-dichlorobenzene	106467	400	63	2,600	190	none	none	none	none
2,4’-D	94757	70	100	None	None	None	None	None	none

2008 Schedule

June 15	Submit to LRC
July 1	Publish in KY Admin Reg
July 23	Public Hearing – Frankfort
Sept 15	SOC and revised regs to LRC
Oct 1	Publish revised regs
Oct 14	ARRS review
Nov 5	Ag-Nat Res Interim Joint Committee review

Nutrients

- EPA is urging states to move forward with promulgation of nutrient criteria for all waters
- Significant progress has been made in Kentucky in developing nutrient criteria
- However, because of inadequate information on nutrient levels and associated biological responses in some parts of the entire state, it was decided to postpone promulgation
- Additional data are being collected to fill in knowledge gaps

Nutrients (cont)

- Mississippi River/Gulf of Mexico Watershed Nutrient Task Force is in final stages of revising Action Plan
- Reductions of 40-45% for both phosphorus and nitrogen are required to reduce the hypoxic zone to 5000 km^2
- Action Plan calls for states to develop nutrient reduction strategies
- State water quality standards regulations will most likely address only phosphorus